Deriving dopaminergic neurons for clinical use. A practical approach.

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Public Summary:
The degeneration of dopamine neurons in the brain causes the loss of fine muscle control that is the most common symptom of Parkinson's disease. We are developing new methods for producing dopamine neurons from pluripotent stem cells. These cells may be used in the future for cell replacement therapy to treat Parkinson's disease.

Scientific Abstract:
New small molecules that regulate the step-wise differentiation of human pluripotent stem cells into dopaminergic neurons have been identified. The steroid, guggulsterone, was found to be the most effective inducer of neural stem cells into dopaminergic neurons. These neurons are extensively characterized and shown to be functional. We believe this new approach offers a practical route to creating neurons of sufficient quality to be used to treat Parkinson's disease patients.